SUBCHAPTER M—UNIFORM MINE HEALTH REGULATIONS

PART 60—RESPIRABLE CRYSTALLINE SILICA

Sec.

AUTHORITY: 30 U.S.C. 811, 813(h) and 957.

SOURCE: 89 FR 28470, Apr. 18, 2024, unless otherwise noted.

§ 60.1 Scope; compliance dates.

(a) This part sets forth mandatory health standards for each surface and underground metal, nonmetal, and coal mine subject to the Federal Mine Safety and Health Act of 1977, as amended. Requirements regarding medical surveillance for metal and nonmetal mines are also included.

(b) The compliance dates for the provisions of this part are as follows:

(1) For coal mine operators, April 14, 2025.

(2) For metal and nonmetal mine operators, April 8, 2026.

§ 60.2 Definitions.

The following definitions apply in this part:

Action level means an airborne concentration of respirable crystalline silica of 25 micrograms per cubic meter of air ($\mu g/m^3$) for a full-shift exposure, calculated as an 8-hour time-weighted average (TWA).

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers that conform to the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

§ 60.10 Permissible exposure limit (PEL).

The mine operator shall ensure that no miner is exposed to an airborne concentration of respirable crystalline silica in excess of 50 $\mu g/m^3$ for a full-shift exposure, calculated as an 8-hour TWA.

§ 60.11 Methods of compliance.

(a) The mine operator shall install, use, and maintain feasible engineering controls, supplemented by administrative controls when necessary, to keep each miner's exposure at or below the PEL, except as specified in § 60.14.

(b) Rotation of miners shall not be considered an acceptable administrative control used for compliance with this part.

§ 60.12 Exposure monitoring.

(a) *Sampling.* (1) Mine operators shall commence sampling by the compliance date in § 60.1 to assess the full shift, 8-hour TWA exposure of respirable crystalline silica for each miner who is or may reasonably be expected to be exposed to respirable crystalline silica.

(2) If the sampling under paragraph (a)(1) of this section is:

(i) Below the action level, the mine operator shall take at least one additional sampling within 3 months.

(ii) At or above the action level but at or below the PEL, the mine operator shall take another sampling within 3 months.

(iii) Above the PEL, the mine operator shall take corrective actions and sample pursuant to § 60.12(b).

(3) Where the most recent sampling indicates that miner exposures are at or above the action level but at or below the PEL, the mine operator shall continue to sample within 3 months of the previous sampling.

(4) The mine operator may discontinue sampling when two consecutive samplings indicate that miner exposures are below the action level. The

second of these samplings must be taken after the operator receives the results of the prior sampling but no sooner than 7 days after the prior sampling was conducted.

(b) *Corrective actions sampling.* Where the most recent sampling indicates that miner exposures are above the PEL, the mine operator shall sample after corrective actions are taken pursuant to § 60.13 until the sampling indicates that miner exposures are at or below the PEL. The mine operator shall immediately report all operator samples above the PEL to the MSHA District Manager or to any other MSHA office designated by the District Manager.

(c) *Periodic evaluation.* At least every 6 months after commencing sampling under 60.12(a)(1) or whenever there is a change in: production; processes; installation or maintenance of engineering controls; installation or maintenance of equipment; administrative controls; or geological conditions; mine operators shall evaluate whether the change may reasonably be expected to result in new or increased respirable crystalline silica exposures. Once the evaluation is completed, the mine operator shall:

(1) Make a record of the evaluation, including the evaluated change, the impact on respirable crystalline silica exposure, and the date of the evaluation; and

(2) Post the record on the mine bulletin board and, if applicable, by electronic means, for the next 31 days.

(d) *Post-evaluation sampling.* If the mine operator determines as a result of the periodic evaluation under paragraph (c) of this section that miners may be exposed to respirable crystalline silica at or above the action level, the mine operator shall perform sampling to assess the full shift, 8-hour TWA exposure of respirable crystalline silica for each miner who is or may reasonably be expected to be at or above the action level.

(e) *Sampling requirements.* (1) Sampling shall be performed for the duration of a miner's regular full shift and during typical mining activities, including shaft and slope sinking, construction, and removal of overburden.

(2) The full-shift, 8-hour TWA exposure for such miners shall be measured based on:

(i) Personal breathing-zone air samples for metal and nonmetal operations; or

(ii) Occupational environmental samples collected in accordance with § 70.201(c), § 71.201(b), or § 90.201(b) of this chapter for coal operations.

(3) Where several miners perform the same tasks on the same shift and in the same work area, the mine operator may sample a representative fraction (at least two) of these miners to meet the requirements in paragraphs (a) through (e) of this section. In sampling a representative fraction of miners, the mine operator shall select the miners who are expected to have the highest exposure to respirable crystalline silica.

(4) The mine operator shall use respirable-particle-size-selective samplers that conform to ISO 7708:1995(E) to determine compliance with the PEL. ISO 7708:1995(E), *Air quality—Particle size fraction definitions for health-related sampling*, First Edition, 1995–04–01, is incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. This incorporation by reference (IBR) material is available for inspection at the Mine Safety and Health Administration (MSHA) and at the National Archives and Records Administration (NARA). Contact MSHA at: MSHA's Office of Standards, Regulations, and Variances, 201 12th Street South, Arlington, VA 22202–5450; (202) 693–9440; or any Mine Safety and Health Enforcement District Office. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov*. The material may be obtained from the International Organization for Standardization (ISO), CP 56, CH–1211 Geneva 20, Switzerland; phone: + 41 22 749 01 11; fax: + 41 22 733 34 30; website: *www.iso.org*.

(f) *Methods of sample analysis.* (1) The mine operator shall use a laboratory that is accredited to ISO/IEC 17025

''General requirements for the competence of testing and calibration laboratories'' with respect to respirable crystalline silica analyses, where the accreditation has been issued by a body that is compliant with ISO/IEC 17011 ''Conformity assessment—Requirements for accreditation bodies accrediting conformity assessment bodies.''

(2) The mine operator shall ensure that the laboratory evaluates all samples using respirable crystalline silica analytical methods specified by MSHA, the National Institute for Occupational Safety and Health (NIOSH), or the Occupational Safety and Health Administration (OSHA).

(g) *Sampling records.* For each sample taken pursuant to paragraphs (a) through (e) of this section, the mine operator shall make a record of the sample date, the occupations sampled, and the concentrations of respirable crystalline silica and respirable dust and post the record and the laboratory report on the mine bulletin board and, if applicable, by electronic means, for the next 31 days, upon receipt.

§ 60.13 Corrective actions.

(a) If any sampling indicates that a miner's exposure exceeds the PEL, the mine operator shall:

(1) Make approved respirators available to affected miners before the start of the next work shift in accordance with § 60.14(b) and (c);

(2) Ensure that affected miners wear respirators properly for the full shift or during the period of overexposure until miner exposures are at or below the PEL; and

(3) Immediately take corrective actions to lower the concentration of respirable crystalline silica to at or below the PEL.

(b) Once corrective actions have been taken, the mine operator shall:

(1) Conduct sampling pursuant to § 60.12(b); and

(2) Take additional or new corrective actions until sampling indicates miner exposures are at or below the PEL.

(c) The mine operator shall make a record of corrective actions and the dates of the corrective actions under paragraph (a) of this section.

§ 60.14 Respiratory protection.

(a) *Temporary use of respirators at metal and nonmetal mines.* The metal and nonmetal mine operator shall use respiratory protection as a temporary measure in accordance with paragraph (c) of this section when miners must work in concentrations of respirable crystalline silica above the PEL while:

(1) Engineering control measures are being developed and implemented; or

(2) It is necessary by the nature of work involved (for example, occasional entry into hazardous atmospheres to perform maintenance or investigation).

(b) *Miners unable to wear respirators at all mines.* Upon written determination by a physician or other licensed health care professional (PLHCP) that an affected miner is unable to wear a respirator, the miner shall be temporarily transferred either to work in a separate area of the same mine or to an occupation at the same mine where respiratory protection is not required.

(1) The affected miner shall continue to receive compensation at no less than the regular rate of pay in the occupation held by that miner immediately prior to the transfer.

(2) The affected miner may be transferred back to the miner's initial work area or occupation when temporary use of respirators under paragraph (a) of this section or section 60.13 is no longer required.

(c) *Respiratory protection requirements at all mines.* (1) Affected miners shall be provided with a NIOSH-approved atmosphere-supplying respirator or NIOSH-approved air-purifying respirator equipped with the following:

(i) Particulate protection classified as 100 series under 42 CFR part 84; or

(ii) Particulate protection classified as High Efficiency ''HE'' under 42 CFR part 84.

(2) When approved respirators are used, the mine operator must have a written respiratory protection program that meets the following requirements in accordance with ASTM F3387–19: program administration; written standard operating procedures; medical evaluation; respirator selection; training; fit testing; maintenance, inspection, and storage. ASTM F3387–19,

Standard Practice for Respiratory Protection, approved August 1, 2019, is incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. This incorporation by reference (IBR) material is available for inspection at the Mine Safety and Health Administration (MSHA) and at the National Archives and Records Administration (NARA). Contact MSHA at: MSHA's Office of Standards, Regulations, and Variances, 201 12th Street South, Arlington, VA 22202–5450; (202) 693–9440; or any Mine Safety and Health Enforcement District Office. For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov*. The material may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959; *www.astm.org*.

§ 60.15 Medical surveillance for metal and nonmetal mines.

(a) *Medical surveillance.* Each operator of a metal and nonmetal mine shall provide to each miner periodic medical examinations performed by a physician or other licensed health care professional (PLHCP) or specialist, as defined in § 60.2, at no cost to the miner.

(1) Medical examinations shall be provided at frequencies specified in this section.

(2) Medical examinations shall include:

(i) A medical and work history, with emphasis on: past and present exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including diagnoses and symptoms of respiratory disease (*e.g.*, shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history;

(ii) A physical examination with special emphasis on the respiratory system;

(iii) A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film (no less than 14 x 17 inches and no more than 16 x 17 inches) or digital radiography systems), classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a NIOSH-certified B Reader; and

(iv) A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV_1) and FEV_1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved Spirometry Program Sponsor or by a pulmonary function technologist with a current credential from the National Board for Respiratory Care.

(b) *Voluntary medical examinations.* Each mine operator shall provide the opportunity to all miners employed at the mine to have the medical examinations specified in paragraph (a) of this section as follows:

(1) During an initial 12-month period; and

(2) At least every 5 years after the end of the period in paragraph (b)(1). The medical examinations shall be available during a 6-month period that begins no less than 3.5 years and not more than 4.5 years from the end of the last 6-month period.

(c) *Mandatory medical examinations.* For each miner who begins work in the mining industry for the first time, the mine operator shall provide medical examinations specified in paragraph (a) of this section as follows:

(1) An initial medical examination no later than 60 days after beginning employment;

(2) A follow-up medical examination no later than 3 years after the initial examination in paragraph (c)(1) of this section; and

(3) A follow-up medical examination conducted by a specialist no later than 2 years after the examinations in paragraph (c)(2) of this section if the chest X-ray shows evidence of pneumoconiosis or the spirometry examination indicates evidence of decreased lung function.

(d) *Medical examinations results.* (1) The mine operator shall ensure that the results of medical examinations or tests made pursuant to this section shall be provided from the PLHCP or specialist within 30 days of the medical examination to the miner, and at the

request of the miner, to the miner's designated physician or another designee identified by the miner.

(2) The mine operator shall ensure that, within 30 days of the medical examination, the PLHCP or specialist provides the results of chest X-ray classifications to the National Institute for Occupational Safety and Health (NIOSH), once NIOSH establishes a reporting system.

(e) *Written medical opinion.* The mine operator shall obtain a written medical opinion from the PLHCP or specialist within 30 days of the medical examination. The written opinion shall contain only the following:

(1) The date of the medical examination;

(2) A statement that the examination has met the requirements of this section; and

(3) Any recommended limitations on the miner's use of respirators.

(f) *Written medical opinion records.* The mine operator shall maintain a record of the written medical opinions received from the PLHCP or specialist under paragraph (e) of this section.

§ 60.16 Recordkeeping requirements.

(a) Table 1 to this paragraph (a) lists the records the mine operator shall retain and their retention period.

(1) Evaluation records made under § 60.12(c) shall be retained for at least 5 years from the date of each evaluation.

(2) Sampling records made under § 60.12(g) shall be retained for at least 5 years from the sample date.

(3) Corrective actions records made under § 60.13(c) shall be retained for at least 5 years from the date of each corrective action. These records must be stored with the records of related sampling under § 60.12(g).

(4) Written determination records received from a PLHCP under § 60.14(b) shall be retained for the duration of the miner's employment plus 6 months.

(5) Written medical opinion records received from a PLHCP or specialist under § 60.15(f) shall be retained for the duration of the miner's employment plus 6 months.

TABLE 1 TO PARAGRAPH (a)—RECORDKEEPING REQUIREMENTS

Record	Section references	Retention period
1. Evaluation records	§ 60.12(c)	At least 5 years from date of each evaluation.
2. Sampling records	§ 60.12(g)	At least 5 years from sample date.
3. Corrective actions records	§ 60.13(c)	At least 5 years from date of each corrective action.
4. Written determination records received from a PLHCP.	§ 60.14(b)	Duration of miner's employment plus 6 months.
5. Written medical opinion records received from a PLHCP or specialist.	§ 60.15(f)	Duration of miner's employment plus 6 months.

(b) Upon request from an authorized representative of the Secretary, from an authorized representative of miners, or from miners, mine operators shall promptly provide access to any record listed in this section.

§ 60.17 Severability.

Each section of this part, as well as sections in 30 CFR parts 56, 57, 70, 71, 72, 75, and 90 that address respirable crystalline silica or respiratory protection, is separate and severable from the other sections and provisions. If any provision of this subpart is held to be invalid or unenforceable by its terms, or as applied to any person, entity, or circumstance, or is stayed or enjoined, that provision shall be construed so as to continue to give the maximum effect to the provision permitted by law, unless such holding shall be one of utter invalidity or unenforceability, in which event the provision shall be severable from these sections and shall not affect the remainder thereof.

PART 62—OCCUPATIONAL NOISE EXPOSURE

Sec.